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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/311,480	05/13/1999	WEI-KUO LEE	D-17965	1296

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EXAMINER

KRUER, KEVIN R

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 02/24/2003

19

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/311,480

Applicant(s)

LEE ET AL.

Examiner

Kevin R Kruer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 18 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1-5, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ongchin (US 4,286,023) in view of Nahass et al. (US 5,591,382) for reasons of record.
2. Claims 1, 6, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ongchin (US 4,286,023) in view of Silver et al. (US 4,317,001) and Nahass et al. (US 5,591,382). Ongchin teaches an article of manufacture comprising one or more strands of a conducting metal or alloy, a layer of semiconductive shielding, a layer of polyethylene insulation and a layer of strippable semi-conductive composition. The strippable semiconductive material comprises (A) an ethylene copolymer selected from the group consisting of an ethylene-alkyl acrylate copolymer containing from about 15-45wt% acrylate or ethylene vinyl acetate containing 15-60wt% acetate, (B) a nitrile rubber containing 10-50wt% acrylonitrile, (C) conductive carbon black, and (D) a peroxide crosslinking agent (col 2, lines 4-19). The ratio of (A) to (B) is between 9:1 and 1:9. The conductive carbon black is added in amounts of 10 to 150 parts per 100 parts of (A)+(B) (col 2, lines 19-26).

Ongchin does not teach that the insulation layer should comprise conductive filler. However, Silver teaches an insulation layer for an electric cable wherein the insulative layer should have a volume resistivity of at least the order of 10^{10} ohm*cm. In order to obtain such a resistivity, conductive particles (e.g., carbon black) may be added to the insulating composition in amounts of less

than 2.5wt% (col 1, lines 18-41). Therefore, it would have been obvious to add low amounts of carbon black to the polyethylene insulative layer taught by Ongchin in order to obtain the desired volume resistivity.

Neither Ongchin nor Silver teaches that carbon fibrils should be utilized as the conductive filler added to the insulating layer. However, Nahass teaches that carbon black is typically utilized as a conductive additive because of cost factors (col 1, line 38). Nahass further teaches that carbon fibrils have been used in place of carbon black as conductive filler and that the addition of carbon fibrils to polymers can be used to enhance the tensile and flexural characteristics of the polymer to which they are added (col 1, line 54- col 2, line 5). Furthermore, the courts have held that it is prima facie obvious to combine two or more compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught in the prior art. *In re Kerkhoven* 626, F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). Therefore, the examiner takes the position that it would have been obvious to one of ordinary skill in the art to utilize a blend of carbon black and carbon fibrils in the insulating layer taught in Ongchin in order to control cost, conductivity, tensile characteristics, and flexural characteristics of the composition.

Thus, it would have been obvious to one of ordinary skill in the art to utilize carbon fibril as the conductive filler in the insulation layer taught by Ongchin because carbon fibrils and carbon black have been utilized interchangeably in the art as electrically conductive fillers and because carbon fibrils would increase the tensile and flexural characteristics of the insulation layer.

3. Claims 1-5, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0420271A1 (herein referred to as "Burns") in view of Nahass et al. (US 5,591,382) for reasons of record.

Response to Arguments

Applicant's arguments filed December 18, 2002 have been fully considered but they are not persuasive.

Applicant argues that the combination of carbon black and carbon fibrils results in lower viscosities at various shear rates in comparison to compositions that comprise solely carbon black or solely carbon fibrils. In support of said argument, applicant points to Table 1 in the specification. However, Applicant compares the composition comprising both carbon black and carbon fibrils to a carbon black composition that comprises much larger amounts of conductive filler. One of ordinary skill in the art would expect the viscosity to increase with an increase in the amount of filler. With respect to the composition comprising solely carbon fibrils, the examiner notes that the prior art teaches carbon fibrils improve a composition's tensile characteristics. Thus, the prior art acknowledges that one of ordinary skill in the art would expect the addition of carbon fibrils to increase the viscosity of the composition at much lower concentrations than the carbon black.

Applicant further argues that the blend of carbon black and carbon fibrils result in compositions with improved thermal resistivity over thermal cycles. However, the data in the specification does not agree in scope with the claims. The inventive examples comprise crosslinking agents, but a crosslinking agent is

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not claimed. Furthermore, the binder of the inventive examples comprises a blend of LLDPE and ethylene/ethyl acrylate. The comparative examples do not utilize the same binder. Thus, no conclusion can be drawn from the data in the specification. Furthermore, the examiner takes the position that the results are not unexpected because Nahass teaches a composition comprising nanotubes should be more structurally stable. Furthermore, Nahass recognizes that compositions comprising carbon black are subject to breakdown during high shear melt processing.

Applicant further argues that “carbon fibers” are not “carbon fibrils.” It is not clear to the examiner what distinction Applicant is attempting to point out. Thus, the examiner is not able to fully respond to the argument. The examiner will note that Nahass teaches the use of carbon fibrils (col 1, lines 54+). Further, the examiner notes that fibrils read on the claimed nanotube (see page 10 of the specification, middle paragraph).

According to Applicant, Nahass teaches away from the use of blends because Nahass teaches that carbon fibrils cannot be dispersed utilizing the same techniques used to disperse carbon black. Applicant argument is not persuasive. While Nahass states that carbon fibrils cannot be dispersed utilizing the same techniques used to disperse carbon black (col 6, lines 48+), Nahass does not explicitly or implicitly state that techniques for dispersing carbon fibrils will not work with carbon black.

Applicant further argues that Nahass is void of any incentive for one skilled in the art to blend carbon fibrils and carbon black. However, the examiner

points out that Nahass was never relied upon for such motivation. Rather, the courts have held that it is prima facie obvious to combine two or more compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose. Since Nahass teaches that carbon black and carbon fibrils are typically utilized as a conductive additive in polymers, Applicant's argument is not persuasive.

Nahass is not drawn to the same field of endeavor as the present invention according to Applicant. The examiner respectfully disagrees. A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem (see MPEP 2141.01(a)). Since the primary references and Nahass each deal with conductive additives to polymeric compositions, the examiner maintains the position that Nahass is analogous art.

The prior art does not teach the optimization of the relative amounts of carbon fibrils and carbon black. However, the courts have held that when the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Nahass teaches that carbon black has been utilized as electrically conductive filler because of its low cost and its resulting uniform electrical conductivity (col 1, lines 27-40). Carbon fibrils have been utilized as conductive fillers because less carbon fibril than carbon black is necessary to reach a desired conductivity and a polymer's tensile and flexural characteristics are enhanced when carbon fibrils are added (col 1, line 54- col 2, line 5). Therefore, the examiner maintains the position that it

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would have been obvious to optimize the relative amounts of carbon black and carbon fibrils in order to obtain uniform electrical conductivity, the desired conductivity, the desired tensile and flexural characteristics, and to control cost.

For the reasons stated above, the rejection is maintained.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**.

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R. Kruer whose telephone number is (703) 305-0025. The examiner can normally be reached on Monday-Friday from 7:00 a.m. to 4:00 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau, can be reached on (703) 308-2367. The fax phone number for the organization where this application or proceeding is assigned is (703)305-5436.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.



Kevin R. Kruer
Patent Examiner



Paul Thibodeau
Supervisory Patent Examiner
Technology Center 1700